

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)
According to Canada WHMIS 2015

Product name	Fyrquel 220	
Product id	7030	
Revision date	19/07/2017	Revision: 5
Supersedes	06/07/2014	

1. Identification of the substance & the company

Product identifier	FYRQUEL 220
Chemical name	Butylated triphenyl phosphate ester
Chemical family	Aryl phosphate
Type of product and use	Fire-resistant hydraulic fluid
Supplier	ICL-IP America Inc. 622 Emerson Road - Suite 500 St Louis, Missouri 63141, USA Tel:(314)983-7884 Fax:(314)983-7607 e-mail:msdsinfo@icl-group.com
Emergency Telephone	Chemtrec: (800) 424-9300 Medical: PROSAR 1-888-875-1685 (24HRS)

2. Hazards identification

OSHA HAZARDS	No OSHA hazards
NFPA Ratings (Scale 0-4)	Health = 1, Fire = 1, Reactivity = 0
HMIS Ratings (Scale 0-4)	Health = 1, Fire =1, Reactivity = 0.

3. Composition / information on ingredients

Components	CAS No.	Weight %
t-Butylphenyl diphenyl phosphate	56803-37-3	30 - 35
Bis(t-butylphenyl)phenyl phosphate	65652-41-7	30 - 35
Tri(t-butylphenyl) phosphate	78-33-1	10 - 15
Triphenyl phosphate	115-86-6	< 25

4. First-aid measures

Eye contact	Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.
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Skin contact	Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before reuse. Get medical attention if irritation persists.
Inhalation	In case of mist inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.
Ingestion	If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, acute or delayed

None known

Notes to the physician	Treat symptomatically and supportively. No specific antidote.
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5. Fire - fighting measures

Suitable extinguishing media	Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions.
Unusual fire and explosion hazards	When heated to decomposition, may release poisonous and corrosive fumes of carbon dioxide, carbon monoxide and phosphorus oxides. The material is not sensitive to ignition from static discharge.
Fire fighting procedure	Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA). Contain runoff to prevent entry into water or drainage systems.

6. Accidental release measures

Personal precautions	Wear appropriate safety clothing and eye/face protection (see Section 8).
Methods for cleaning up	Soak up with sand or other suitable absorbent and dispose of as solid waste. Collect in suitable and properly labeled containers. Ventilate area and wash spill site after material pickup is complete.
Environmental precautions	Prevent product from entering drains, ditches and rivers.

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7. Handling and storage

Handling Avoid bodily contact. Keep containers tightly closed.

Storage Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid"). Maximum recommended storage temperature of 65°C (149°F) Store above 4.4°C (40° F) for improved pumping rates. Temperatures between 27 - 37.8°C (80 - 100°F) provide good flow rates.

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	Korea OEL	OSHA (PEL) Data
t-Butylphenyl diphenyl phosphate 56803-37-3	Not determined	Not determined	Not determined
Bis(t-butylphenyl)phenyl phosphate 65652-41-7	Not determined	Not determined	Not determined
Tri(t-butylphenyl) phosphate 78-33-1	Not determined	Not determined	Not determined
Triphenyl phosphate 115-86-6	3 mg/m ³	Not determined	3 mg/m ³

Ventilation requirements Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

Personal protective equipment:

- **Respiratory protection** P-100 Organic Acid Gas Canisters or Cartridges if exposure is not high. Supplied Air Respirator if high concentration of exposure.
- **Hand protection** Nitrile or latex gloves
- **Eye protection** Chemical safety goggles
- **Skin and body protection** Body covering clothes and boots

Hygiene measures Do not eat, smoke or drink where material is handled, processed or stored. Wash hands thoroughly after handling and before eating or smoking. Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance Yellowish liquid
Odor Slight.

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pH	Not determined
Melting point/range	Not determined
Boiling point/range	>400°C
Pour point	-17.77°C (0 °F)
Flash point	246°C (475°F) (closed cup)
Flammable/Explosion limits	Not flammable/Not explosive
Vapor pressure	1.08x10 ⁽⁻³⁾ Pa (20°C)
Vapor density	Not determined
Density	1.13 - 1.17 g/cm ³ (20°C)
Solubility:	
- Solubility in water	< 0.1 g/100 ml
Partition coefficient (n-octanol/water)	Log Kow : 4.85
Auto-ignition temperature	Not self-ignitable
Viscosity	220 SUS @ 38°C (100°F)
Ignition temperature	554.44°C (1030°F)
Oxidising properties	The structure indicates non oxidizing properties

10. Stability and reactivity

Reactivity	No reactive hazards known/expected.
Stability	Stable under normal conditions
Possibility of hazardous reactions	Not expected to occur
Conditions to avoid	Exposure to moisture.
Materials to avoid	Acids. alkalies.
Hazardous decomposition products	Phosphorus oxides. Carbon dioxide and carbon monoxide.

11. Toxicological information

Note: *Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.*

Acute toxicity:	
- Rat oral LD50	> 5000 mg/kg
- Rabbit dermal LD50	> 2000 mg/kg
- Rat inhalation LC50	> 0.4 mg/l
Skin corrosion/irritation	Not irritant

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Serious eye damage/ irritation	Not irritant
Mutagenicity	No evidence of genotoxic or mutagenic activity was noted in Ames tests, the mouse lymphoma and chromosome aberration tests.
Carcinogenicity	Not classified by IARC Not included in NTP 14th Report on Carcinogens Not classified as a carcinogen by USA OSHA
Reproductive toxicity	Butylated triphenyl phosphate did not demonstrate reproductive toxicity.
Teratogenicity	Not teratogenic when administered orally up to 1000 mg/kg
Specific Target Organ Toxicity (STOT) - Single exposure	No effects on specific target organs have been identified
Specific Target Organ Toxicity (STOT) - Repeat exposure	NOAEL 107.5 mg/kg bw /day (90 days oral, male rat) NOAEL 124.8 mg/kg bw /day (90 days oral, female rat)
Neurotoxicity	No signs of acute delayed neurotoxicity when administered orally to hens at 23 g/kg

12. Ecological information

Aquatic toxicity :

- 96 Hour-LC50, Fish	0.8 mg/l (Ictalurus punctatus)
- 96 Hour-EC50, fish	> 2.0 mg/l (Rainbow Trout)
- LC50, Crustacea	0.39 mg/l ((Mysid shrimp, 96-hours))
- 48 Hour-EC50, Daphnia magna	202 µg/L

Biodegradation	Readily biodegradable
Bioaccumulative potential	The wholefish BCF was found to be 1850.
Note:	Not considered to be PBT or vPvB

13. Disposal considerations

Waste disposal	Observe all federal, state and local environmental regulations when disposing of this material
Disposal of Packaging	Dispose of in a safe manner in accordance with local/national regulations.

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14. Transportation information

UN No.	3082
DOT	<p>Proper shipping name: Environmentally hazardous substances, liquid , n.o.s (triphenyl phosphate, tert-butylated triphenyl phosphate mixtures containing 10% to 48% triphenyl phosphates) Class: 9 - Miscellaneous Hazardous Materials Labels: 9 Packing Group: III</p> <p>Not regulated for surface and air transport in non-bulk (<119 gallons) packagings. (contains triphenyl phosphate which is a Marine Pollutant per 49CFR 172.101 Appendix B)</p>
IMDG	<p>Proper shipping name: Environmentally hazardous substance, liquid, n.o.s (triphenyl phosphate, tert-butylated triphenyl phosphate mixtures containing 10% to 48% triphenyl phosphates) Class: 9 - Miscellaneous Dangerous Substances and Articles Packing Group: III Labels: 9 Mark: MARINE POLLUTANT</p>
ICAO/IATA	<p>Proper shipping name: Environmentally hazardous substance, liquid , n.o.s (triphenyl phosphate, tert-butylated triphenyl phosphate mixtures containing 10% to 48% triphenyl phosphates) Class: 9 Packing group: III Hazard label(s): Miscellaneous Marking: Environmentally hazardous substance</p>

15. Regulatory information

USA	Reported in the EPA TSCA Inventory.
- SARA 313	This product does not contain a chemical listed at or above de minimis concentrations
- Massachusetts Right-to-Know Hazardous Substances list	Listed (Triphenyl phosphate)

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- **New Jersey Right-to-Know Hazardous Substances list** Listed (Triphenyl phosphate)
- **Pennsylvania Right-to-Know Hazardous Substances list** Listed (Triphenyl phosphate)
- **Rhode Island Right-to-Know Hazardous Substances list** Listed (Triphenyl phosphate)
- **California-Prop 65** This product does not contain any ingredient known to the State of California to cause cancer or reproductive toxicity as listed under the State drinking Water and Toxic Enforcement Act of 1986.
- **Waste Classifications** This material does not meet RCRA`s characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40CFR 261.33.
- Canada** Listed in DSL
- EU** Reported in EINECS
- Australia** Listed in AICS
- China**
- **China inventory** Listed in IECSC
- Japan** Listed in ENCS
- Korea** Listed in ECL
- New Zealand Inventory** Listed in NZIoC
- Philippines** Listed in PICCS

16. Other information

This data sheet contains changes from the previous version in section(s)
11

Health, Safety & Environment Policy

We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation

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TO MEET THIS COMMITMENT WE WILL: Comply with or exceed applicable national and international regulatory requirements and other requirements to which we subscribe Communicate openly and actively encourage dialogue with employees, customers and community concerning our products and operations Implement documented management systems consistent with and for promotion of the Responsible Care ethics

Develop and supply products that can be manufactured, transported, used and disposed of safely whilst best meeting the needs of our customers Regularly assess, continually improve and responsibly manage health, safety and environmental risks associated with products and processes throughout their life-cycles Share knowledge and expertise with others and seek to learn from and incorporate improved practices into our own operations

Educate and train employees, contractors and customers to improve their HSE performance Communicate up-to-date information to enable our workers, customers and other interested parties to handle our products in a safe and environmentally responsible manner Endeavor to work with customers, suppliers, distributors and contractors to foster the safe use, transport and disposal of our chemicals Support Product Stewardship programs in cooperation with customers, distributors and transporters

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ICL-IP America Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its safety and suitability for their purposes prior to use. In no event will ICL-IP America Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE, ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

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End of safety data sheet